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COVERS:**

- Site background
- Illinois EPA's proposed alternative for the unnatural sediments in the South Ditch
- Other cleanup activities that were considered for the South Ditch

**PUBLIC COMMENT
PERIOD**

Illinois EPA will accept written comments on its recommended cleanup method for the South Ditch unnatural sediments during a 60-day public comment period from:

To Be Determined**PUBLIC HEARING**

Illinois EPA will hold a public meeting in DePue, Illinois to explain and answer questions about the recommended cleanup method for the contaminated sediments. Oral and written comments will be accepted at the meeting on TBD.

Date:**Time:****Place:**

Written comments can also be mailed to:

Illinois EPA
Attn: Hearing Officer
P.O. Box 19276
Springfield, IL 62794

Illinois EPA Proposes Remedy for Unnatural Sediments in South Ditch At the DePue-New Jersey Zinc/Mobil Chemical National Priorities List Site

**DePue, Illinois
July 2002**

INTRODUCTION

The Illinois Environmental Protection Agency (Illinois EPA) and the United States Environmental Protection Agency (U.S.EPA) are proposing a remedy for the unnatural sediments in the South Ditch at the DePue-New Jersey Zinc/Mobil Chemical Site in DePue, Illinois. This proposed remedy would remove the unnatural sediment by a combination of hydraulic and mechanical dredging, stabilizing the removed sediments and containing them in an on-site unit until a final remedy is selected for the much larger quantities of similar material on and around the plant site.



Illinois EPA is issuing this Proposed Plan as part of the public participation requirements pursuant to Section 300.430(f)(2) of the National Oil and Hazardous Substances Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) 300.430(f)(2)). This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation/Feasibility Study (RI/FS) report and other documents contained in the Administrative Record file for this site. The Administrative Record file for the site is located in the Illinois EPA, Bureau of Land records in Springfield, Illinois and at the Selby Township Library in DePue, Illinois. Illinois EPA and U.S.EPA encourage the public to review these documents to gain a more comprehensive understanding of the site and Superfund activities that have been conducted at the site. Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA or Superfund) requires publication of a notice and brief analysis of a Proposed Plan for site remediation.

This Proposed Plan provides background on the site, describes the alternatives being considered to remediate the unnatural sediments in the south ditch, presents the rationale for identification of the proposed alternative and outlines the public's role in helping the Illinois EPA make a final decision on the remedy.

BACKGROUND

In 1983, Illinois EPA, U.S.EPA and other state and federal agencies began to investigate the site and evaluate the feasibility of including the site on the National Priorities List (NPL). Based on these evaluations and sampling conducted in 1992 and 1993, Illinois EPA opened negotiations with former and current owners and operators to perform various remedial actions and investigations of the site. These negotiations resulted in an Interim Consent Order (ICO) between the State of Illinois, Viacom International Inc., Mobil Oil Corporation, and Horsehead Industries, Inc. This ICO was entered in the Circuit Court for the Thirteenth Judicial Circuit Bureau County, Illinois on November 6, 1995. The three companies have chosen the name "DePue Group" to represent themselves as past and former owners and/or operators of the site. The DePue Group has been fulfilling the requirements of the ICO since it was entered in the Bureau County Circuit Court. The site was proposed for listing on the NPL on April 1, 1997 and was listed on the NPL on May 10 1999.

One requirement of the ICO was for the DePue Group to take measures to reduce or preclude discharges of metals-contaminated groundwater to surface waters of the state. These discharges were resulting in the deposition of metals-contaminated sediments (precipitant) in the South Ditch area of the site. The construction and operation of the Interim Water Treatment Plant (IWTP) has substantially reduced the discharge of contaminated groundwater to surface water.

Another requirement of the ICO was that the DePue Group completes an expedited and focused RI/FS of the South Ditch and implement the selected remedy for the metals-contaminated sediment. This proposed action is based on the results of that RI/FS and a subsequent contractor proposal submitted by the DePue Group.

SITE CHARACTERISTICS

The DePue Group was required by the ICO to conduct a detailed study (Remedial Investigation or RI) of the South Ditch and the unnatural sediments identified

during past Illinois EPA investigations. Following the RI, the DePue Group was obligated to perform an analysis of various actions (Feasibility Study or FS) that could be taken to mitigate any risk presented by the unnatural sediments.

The RI/FS was conducted between 1995 and 1997. The RI indicated that: Approximately 8,000 cubic yards of unnatural sediment exist within the study area, varying in depth from 2.6 to 6.8 feet and from 12 feet to greater than 45 feet in width.

- The unnatural sediment contained elevated concentrations of metals, compared to background samples collected at Turner Lake. The analytical results are summarized in Table 1.
- Groundwater in portions of the South Ditch is upwelling, resulting in groundwater discharges to the stream.
- The unnatural sediment is acutely toxic to specific test organisms,
- Beaver inhabits the area of the South Ditch.
- Sport and forage fish, great blue herons, egrets and waterfowl inhabit DePue Lake, which receives discharges from the ditch, including wood ducks, mallard ducks and Canada geese.
- Vegetation in the area of the South Ditch is sparse (i.e., stressed or non-existent).

SCOPE AND ROLE OF THE ACTION

The proposed action is referred to as the South Ditch Interim Sediments Action. It is an action intended to remediate the unnatural sediment identified during the South Ditch Focused Remedial Investigation. The unnatural sediment constitutes a principle threat waste, as defined in "*A Guide to Principle Threat and Low Level Threat Waste*" (OSWER 9380.3-06FS, November 1991). The determination that the unnatural sediment is a principle threat waste is based on the human health and ecological screening risk assessment results and the high-mobility potential of this source material. The interim action discussed in this proposal will be followed by the Southeast Area component of the comprehensive RI of the DePue New Jersey Zinc/Mobil Chemical site. The comprehensive recovery of the plant site was started in 1999 and will ultimately be expanded to include to all properties, both on and off-site, that might

Table 1
Summary of Metals Analysis of Sediments

| Metal | South Ditch Minimum Concentration (mg/kg) | South Ditch Maximum Concentration (mg/kg) | Turner Lake (Background) Average Concentration (mg/kg) | Ontario & British Columbia Provincial Guidelines (mg/kg) | | Frequency that South Ditch Sediments Exceeded Sediment Guidelines |
|------------------|--|--|--|---|-------|--|
| | | | | LEL | SEL | |
| Arsenic | 7.8 | 82 | 8.1 | 6 | 33 | 13/13 (LEL) |
| Beryllium | ND | 2.8 | 0.9 | NA | NA | NA |
| Cadmium | 32.4 | 910 | 5.2 | 0.6 | 10 | 13/13 (LEL), 13/13 (SEL) |
| Chromium | ND | 78.2 | 40.4 | 26 | 110 | NA |
| Cobalt | 8.1 | 70.2 | 10 | 50 | NA | 9/13 (LEL) |
| Copper | 144 | 97,700 | 41.2 | 16 | 110 | 13/13 (LEL), 13/13 (SEL) |
| Lead | 125 | 3,440 | 48.7 | 31 | 250 | 13/13 (LEL), 12/13 (SEL) |
| Manganese | 433 | 3,130 | 572 | 460 | 1,100 | 13/13 (LEL), 13/13 (SEL) |
| Mercury | ND | 4.6 | ND | 0.2 | 2.0 | 12/13 (LEL) |
| Nickel | 11.6 | 69.4 | 37.4 | 16 | 75 | 13/13 (LEL) |
| Selenium | ND | 4.6 | 0.65 | 5 | NA | NA |
| Silver | ND | 144 | ND | 0.5 | NA | 13/13 (LEL) |
| Vanadium | 5 | 38 | 26.5 | NA | NA | NA |
| Zinc | 3,840 | 204,000 | 240 | 120 | 820 | 13/13 (LEL), 13/13 (SEL) |

ND - Not Detected NA - Not Applicable or Not Available LEL - Lowest Effect Level SEL - Severe Effect Level

The comparison against the Provincial Sediment Guidelines was only done for samples in the top six inches of the sediment column. The highest concentrations reported in this table (Cobalt, Lead, and Mercury) were not evaluated against those guidelines because they were found at depths of greater than six inches in the sediment column.

reasonably be expected to have been affected by past plant site activities. Following completion of the comprehensive FI, a final remedy (or remedies) for the entire site, including the Southeast Area, will be proposed.

The Remedial Action Objectives for the South Ditch Interim Sediments Action are to prevent further migration of South Ditch unnatural sediments into DePue Lake and to limit exposure of potentially at-risk human and ecological receptors (plants and animals). These objectives will be accomplished by removing the

unnatural sediment from the dynamic South Ditch setting, stabilizing the unnatural sediment by physical and chemical treatment and containing the unnatural sediment on site. The stabilized, unnatural sediment will be held on site in a discreet containment unit until a final remedy for much larger quantities of source material (the primary zinc smelter slag pile is estimated to contain one million tons of material) is selected. Through the use of removal and treatment technologies, this interim action will permanently reduce the mobility

and volume of the unnatural sediment that constitutes the principle threat waste in the South Ditch.

SUMMARY OF SITE RISK

As part of the RI/FS, the DePue Group, under the oversight of the Illinois EPA, conducted a two-part, streamlined, qualitative-screening Risk Assessment. The qualitative-screening Risk Assessment evaluated the risk presented by the unnatural sediment to the potential child trespasser and the potential future construction worker.

This qualitative-screening approach compared the maximum levels of contaminants at the site to the screening values for contaminants of concern found in the Illinois EPA's "Tiered Approach to Corrective Action Objectives" (TACO, 35 Illinois Administrative Code 742), to determine if the unnatural sediments warranted expedited remedial action.

While TACO is not an Applicable or Relevant and Appropriate Requirement (ARAR) for NPL sites, it is a set of regulations To Be Considered (TBC) and does provide "look up" tables of contaminant concentration information sufficient for the purposes of the qualitative-screening risk assessment. The tables contained in TACO present acceptable concentrations under various exposure scenarios. These acceptable contaminant concentrations are individually calculated using methodologies consistent with U.S. EPA's Risk Assessment Guidance for Superfund (RAGS). The TACO tables are also consistent with the available federal Soil Screening Levels (SSLs).

The qualitative risk assessment also evaluated the potential risk the unnatural sediment may pose to indigenous flora and fauna inhabiting the South Ditch. A quantitative Risk Assessment of the South Ditch, fully consistent with RAGS, will be performed as part of the comprehensive site-wide Remedial Investigation.

Human Health Risk

The qualitative Risk Assessment considered two pathways of exposure for both the child trespasser and the construction worker scenarios: the inhalation of dried unnatural sediment and the ingestion of the unnatural sediment. The risk assessment did not consider the dermal (absorption through the skin) pathway of exposure because the only contaminants evaluated during the Focused South Ditch RI were metals that are not well absorbed through the skin.

Residential land use was not evaluated during the screening risk assessment because residential development would not reasonably be expected to occur in the area (the South Ditch is fully within the annual flood plain of DePue Lake and the Illinois River).

For the child trespasser scenario, the risk assessment used "Risk Based Screening Concentrations" for each contaminant identified during the South Ditch Focused RI. These concentrations were calculated by adjusting the values published in TACO to consider that a six to twelve year old child trespasser could reasonably be expected to play in the area of the South Ditch approximately 4 hours per day, 50 days per year. The screening concentrations for the construction worker scenario were those concentrations taken directly from TACO without adjustment.

Based on the results of the RI, the qualitative Risk Assessment determined that the contaminants of concern for the child trespasser scenario were arsenic, copper and lead. The contaminants of concern for the construction worker scenario were arsenic, cadmium, copper, lead and zinc.

U.S. EPA guidance (RAGS) considers two types of risk: cancer risk and non-cancer risk. The likelihood of any kind of cancer resulting from a Superfund site is generally expressed as a probability. For example, a "1 in 1,000,000 increased chance" (expressed as 1×10^{-6}). In other words, for every 1,000,000 people that are exposed to the site contaminants, one additional cancer case may occur. This cancer case is in addition to the number of cancer cases normally expected in a population of 1,000,000.

U.S. EPA considers risks between 1×10^{-6} and 1×10^{-4} (between 1 in a million and 1 in one hundred thousand) to be within the acceptable range (i.e., the acceptable risk range). Illinois EPA considers risk of 1×10^{-6} a goal and evaluates risk greater than 1×10^{-6} on a site-by-site basis. In the child trespasser scenario, only arsenic exceeds the cancer risk level of 1×10^{-6} , presenting a potential risk of 1.49×10^{-6} .

For non-cancer health effects, U.S. EPA calculates a "hazard index" (HI). This index is a comparison of the concentration present at the site and the concentration below which non-cancer health effects are no longer expected. For example, the highest arsenic concentration at the site is 82 parts per million. The concentration for arsenic below which no health effect would be expected for a construction worker is 61 parts

per million. The hazard index is calculated by dividing 82 by 61, which equals 1.34. Using this comparison, any contaminant at the site with a hazard index greater than one is of some concern.

For non-cancer risk in the child trespasser scenario, copper exceeded the hazard index of 1. For non-cancer risk calculations in the construction worker scenario, arsenic, cadmium, copper and zinc exceeded the hazard index of 1. The hazard index data for both the child trespasser and construction worker scenarios are summarized in Table 2.

Lead concentrations exceeded the 400 mg/kg preliminary remediation goal of the Office of Solid Waste and Emergency Response (OSWER) Directive #9355.4-12 by a factor of 8.6 (3,440 mg/kg). While the OSWER Directive value of 400 mg/kg for lead is a remediation goal for residential soils and is not directly applicable to the South Ditch, the same 400 mg/kg value for lead is used in TACO for all land-use scenarios and is the value contained in the federal Soil Screening Levels (SSLs).

Table 2
Hazard Index Summary

| Compound | Maximum South Ditch Concentration mg/kg | Concentration Where HI=1 Ingestion Pathway mg/kg | Derived Hazard Index |
|-------------------------------------|---|--|----------------------|
| Construction Worker Scenario | | | |
| Arsenic | 82 | 61 | 1.34 |
| Cadmium | 910 | 200 | 4.55 |
| Copper | 97,700 | 8,200 | 11.9 |
| Zinc | 204,000 | 61,000 | 3.34 |
| Child Trespasser Scenario | | | |
| Copper | 97,700 | 47,000 | 2.1 |

Ecological Risk

A screening ecological risk assessment was performed as part of the Focused South Ditch RI Report. The assessment used a qualitative approach through a combination of direct testing and review of available literature. The Focused South Ditch RI summarizes available information on the effects of metals on ecological receptors such as mammals, birds, reptiles and amphibians, fish, invertebrates and plants. It also reports the results of direct benthic organism surrogate

testing. The south ditch sediment metals concentrations were also compared to the Ontario and British Columbia Provincial Guidelines for aquatic sediment quality (Ontario Sediment Guidelines). These guidelines are widely accepted for ecological evaluations.

According to the RI, beaver frequent the South Ditch area and a number of sport and forage fish inhabit DePue Lake, which receives the South Ditch discharge. The lake is also a significant recreational resource for the village of DePue.

A number of piscivorous (fish eating) birds and waterfowl also inhabit DePue Lake. Illinois EPA staff has observed indications of raccoon, muskrat and deer in the area of the South Ditch. This evidence included raccoon tracks and open mussel shells (likely from raccoon feeding), deer tracks in the mud flats adjacent to the South Ditch and visual sightings of muskrat in a pond adjacent to the South Ditch. Great blue heron, great egrets, bald eagles and white pelicans have also been seen feeding in DePue Lake near the entry point of the South Ditch. An unidentified species of gar has also been observed near the northern-most extent of the South Ditch.

In addition to the comparison of South Ditch sediments against published sediment quality guidelines, direct testing of the survivability of surrogate benthic organisms was conducted. Midge larvae (*Cehironomus tentans*) and scud (*Hyalella azteca*) were selected as the surrogates, because they live in the benthic environment (the top few inches of lake sediment). Midge larvae and scud, or very similar species, would be expected to occur in DePue Lake sediments and they are readily available for testing.

The results of the benthic organism surrogate testing indicated a 100 percent mortality rate, within four days, of scud exposed to South Ditch sediments from all eight sample locations. 100 percent mortality within four days was also reported for midge exposed to samples from seven of the eight locations. The eighth location showed an 85 percent mortality rate after four days for midge. These results indicate acute toxicity of South Ditch sediment to the surrogate test organisms and a distinct possibility that the sediment represents a significant threat to benthic organisms likely to inhabit the area of the South Ditch. Numerous fish species, great blue herons, egrets and certain other waterfowl rely on these benthic organisms as food sources. In addition, some waterfowl, (e.g., mallard ducks) are dabblers, and could ingest the contaminated sediments.

Based on the risks identified in the qualitative human health risk assessment and the screening ecological risk assessment, the alternatives and measures identified in this Proposed Plan are necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. The reader is referred to the South Ditch Focused RI Report for a complete discussion of the screening risk assessment process and results.

REMEDIAL ACTION OBJECTIVES

The remedial action objectives identified for the South Ditch Sediments Interim Action are to:

- Mitigate the potential for flood water and water discharges to the South Ditch to mobilize the unnatural sediment;
- Mitigate the potential acute exposure risk to sensitive ecological and human receptors via contact with the unnatural sediment;
- Mitigate the potential for the on-site trespasser; and
- Be compatible with future site-wide remedies.

The proposed action does not contain specific chemical targets for removal of unnatural sediment from the South Ditch, but rather proposes to remove the identified quantity of unnatural sediment from the dynamic ditch setting.

SUMMARY OF REMEDIAL ALTERNATIVES

The DePue Group prepared the draft South Ditch focused FS to identify and evaluate a limited number of potential remedial alternatives to satisfy the remedial action objectives established for this site.

The South Ditch FS presents four remedial action alternatives with three sub-alternatives for review, all of which were carried forward through full detailed analysis.

All the remedial alternatives include common elements of short and long-term monitoring. The short-term monitoring would include: 1. Health and safety monitoring to ensure that site workers are not exposed to undue or unexpected risk; and 2. Quality control monitoring to confirm the attainment of relevant performance criteria. Long-term monitoring would verify that the remedy performs as expected over time and would allow timely maintenance of physical components of the alternatives. All long-term

monitoring referenced in this document assumes a 30-year monitoring period, as did the draft South Ditch focused FS. The DePue Group included a monitoring provision in the "No Action" alternative, although monitoring is generally not considered in this alternative. Illinois EPA does not oppose the monitoring provision.

All alternatives except Alternative 1 (Natural Recovery/No Action) include common elements of institutional controls and certain surface-water control measures. The institutional controls would include warning signs and limited fencing. Additional institutional controls, such as deed restrictions, are not necessary on a short-term basis, but may be appropriate in the long term. Selection and implementation of long-term institutional controls is deferred, pending selection of final remedies for the entire site. Long-term institutional controls must be compatible with site-wide remedies.

All costs presented below are from the April 1997 draft FS and are in 1997 dollars. The costs have not been adjusted to 2002 dollars.

Alternative 1: Natural Recovery/No Action

This is the baseline condition required by the NCP for comparison purposes, and assumes that no direct remedial measures would be implemented at the site. This alternative relies solely on unaided natural recovery (natural siltation) of the study area, but as developed by the DePue Group and discussed above, does include both short-and long-term monitoring of the study area.

Estimated Capital Cost: \$0

Estimated Annual O&M Cost: \$21,665

Estimated Present Net Worth: \$429,000

Estimated Months to Construct: 0

Estimated Time for Natural Recovery: 30 years

Alternative 2: Enhanced Natural Recovery with Influent Surface Water Diversion

This alternative would involve construction of a series of check dams across the study area, with surface-water control features to retain the unnatural sediment within the study area and increase the natural deposition of silt over the study area. Additionally, Alternative 2 would include the common elements of monitoring and institutional controls.

Estimated Capital Cost: \$608,000

Estimated Annual O&M Cost: \$28,662

Estimated Present Net Worth: \$1,176,000
Estimated Months to Construct: < 6 months
Estimated Time for Enhanced Natural Recovery: 5 to 15 years

Alternative 3: Above-Grade Cap

This alternative would redirect surface water flows to a new drainage way to replace the South Ditch in situ (in-place) stabilization of the unnatural sediment. An above-grade cap would be constructed over the stabilized unnatural sediment along the current path of the South Ditch. Additionally, Alternative 3 would include the common elements of monitoring and institutional controls.

Estimated Capitol Cost: \$946,000
Estimated Annual O&M Cost: \$22,330
Estimated Present Net Worth: \$1,387,000
Estimated Months to Construct: < 6 months

Alternative 4: Removal of Unnatural Sediment with Sub-Alternatives

Each sub-alternative under the Removal of Unnatural Sediment has the common elements of short-term surface water diversion, short-term spring water diversion, removal of the unnatural sediment (via a combination of mechanical and hydraulic dredging) and dewatering of the removed sediment. The primary differences between sub-alternatives 4A, 4B and 4C are the dispositions of the unnatural sediment following removal and dewatering.

Each sub-alternative in Alternative 4 would comply with the requirements of Section 404 of the Federal Water Pollution Control Act (also known as the "Clean Water Act" or CWA) via U.S. Army Corps of Engineers Nationwide Permit 38 (Cleanup of Hazardous and Toxic Waste), 35 Illinois Administrative Code 304, and Section 401 of the CWA. Through the testing procedures outlined in Section 401 of the CWA, specific sediment and water management techniques and materials will be selected to comply with Best Management Practices, thus minimizing any potential non-compliance with Section 401.

The existing and operating Interim Water Treatment Plant (IWTP) will be utilized to the maximum extent practical (to the limit of available capacity) to further reduce any non-compliance potential. Current IWTP discharges are consistent with all applicable state and federal regulations.

Alternative 4A: Removal of Unnatural Sediment with Direct Use

Following failure to show progress on resolution of differences on the South Ditch Focused FS, this alternative became unavailable. The unavailability of this alternative was driven by a withdrawal of interest by the potential user (a local high zinc and copper micro-nutrient fertilizer manufacturer).

Estimates not included: alternative unavailable.

Alternative 4B: Removal of Unnatural Sediment with On-Site Consolidation

This alternative involves the common elements discussed above with construction of an Interim Containment Unit (ICU) for the physically- and chemically-stabilized unnatural sediment, consistent with a Remedial Action Plan (RAP), as set forth in 35 Illinois Administrative Code 703.300. The unnatural sediment will be held in the on-site ICU, pending selection of final remedies to be implemented at the plant site. The ICU would be constructed over an area of contaminated soil and ground water, utilizing a recompacted clay layer, a high-density polyethylene (HDPE) or similar liner and an aggregate drainage layer as a liner under the stabilized sediment. The ICU would be covered with a recompacted clay layer over the stabilized sediment, with the clay cover layer designed to shed water away from the interior of the ICU. This clay cover layer would be monitored to insure maintenance of protectiveness. Any water collected in the aggregate drainage layer would be periodically transferred to the existing Interim Water Treatment Plant for treatment.

Estimated Capitol Cost: \$1,677,000¹
Estimated Annual O&M Cost: \$11,000
Estimated Present Net Worth: \$1,895,000¹
Estimated Months to Construct: < 6 months

¹ The above cost summary is taken from the South Ditch Focused FS, which included dewatering in tanks and further dewatering using a filter press at a capitol cost of \$320,060. The alternative has been modified in a proposal from the DePue Group that uses a consolidation basin (decant pond) rather than tanks and a filter press. Some cost reductions may result from these changes.

Alternative 4C: Removal of Unnatural Sediment with Off-Site Disposal

This alternative utilizes the common elements discussed previously and would ship the stabilized unnatural sediment off-site for disposal at a permitted, compliant, non-hazardous waste landfill. The reported cost of this

alternative also includes the potential cost reductions discussed in alternative 4B above.

Estimated Capital Cost: \$2,404,000

Estimated Annual O&M Cost: \$0

Estimated Present Net Worth: \$2,404,000

Estimated Months to Construct: < 6 months

Illinois EPA Proposal

Illinois EPA proposes Alternative 4B: Removal of Unnatural Sediment with On-site Consolidation.

Alternative 4-B would protect human health and the environment, provide long-term protection and comply with state and federal environmental regulations.

EVALUATION OF ALTERNATIVES

Nine evaluation criteria have been developed by U.S. EPA to address the statutory requirements and the technical, cost and institutional considerations for appropriate remedial actions at Superfund Sites. These nine criteria are described below. Table 3 compares the alternatives of this Proposed Plan to the nine criteria.

Overall Protection of Human Health and the Environment addresses whether or not the remedy provides adequate protection and describes how risks are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether or not the remedy will meet all of the applicable or relevant and appropriate requirements of other state and federal environmental statutes or provide grounds for invoking a waiver.

Long-term Effectiveness and Permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.

Reduction of Toxicity, Mobility or Volume Through Treatment is the anticipated performance of the treatment technologies a remedy may employ.

Short-term Effectiveness involves the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

Implementability is the technical and administrative feasibility of a remedy, including the availability of

goods and services needed to implement the chosen solution.

Cost includes capital and operation and maintenance costs.

Support Agency Acceptance indicates whether, based on its review of the Remedial Investigation / Feasibility Study (RI/FS) and Proposed Plan, the support agency concurs, opposes or has no comment on the proposed alternative. In this case, the support agency is U.S.EPA.

Community Acceptance addresses the public's comments on and concerns about the Proposed Plan and the FS Report. The specific responses to public comments will be addressed in the Responsiveness Summary attached to the Record of Decision.

YOUR OPINION COUNTS!

Public comments on the remedies and cleanup methods being considered for the South Ditch sediments are important. New information may be obtained through these comments that would influence Illinois EPA to modify its recommended alternative or to select another alternative presented in this Proposed Plan. You are encouraged to review and comment on these alternatives. Illinois EPA will respond to comments in a Responsiveness Summary document, which will be attached to the Record of Decision.

Table 3
Summary of Evaluation of Each Alternative Against the Nine Criteria

| Evaluation Criteria | Alternative 1 Natural Recovery / No Action | Alternative 2 Enhanced Natural Recovery with Surface Water Diversion | Alternative 3 Above Grade Cap | Alternative 4B Removal with On-Site Consolidation | Alternative 4C Removal with Off-Site Disposal |
|--|--|---|----------------------------------|---|---|
| Overall Protection of Human Health and the Environment | ■ | ■ | ■ | ■ | ■ |
| Compliance with ARARs | □ * | □ * | □ * | ■ | ■ |
| Long Term Effectiveness and Permanence | ■ | ■ | ■ | ■ | ■ |
| Reduction in Toxicity, Mobility, or Volume through Treatment | □ | □ | ■ | ■ | ■ |
| Short-term Effectiveness | □ | ■ | ■ | ■ | ■ |
| Implementability | ■ | ■ | ■ | ■ | ■ |
| Cost | \$429,000 ¹ | \$1,176,000 ² | \$1,387,000 ² | \$1,895,000 ² | \$2,404,000 ² |
| Support Agency Acceptance | The USEPA has reviewed the components of Alternative 4-B and supports its acceptance as the recommended alternative pending review of public comments. | | | | |
| Community Acceptance | Community acceptance of the recommended alternative will be evaluated after the public comment period. | | | | |

■ Fully Meets Criteria; ■ Partially Meets Criteria; □ Does Not Meet Criteria

¹ Alternatives 1, 2 & 3 were carried through the detailed analysis, in this Proposed Plan summary, only in consideration of U.S. EPA's OSWER Directive 9200.0-36. These three alternatives would typically be rejected because of their failure to meet the threshold criteria of Compliance with ARARs.

² The cost information presented here is from the 1997 FS and has not been adjusted for inflation or other factors.

Based on the information currently available, Illinois EPA believes the proposed Alternative 4B meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives, with respect to the balancing and modifying criteria. Illinois EPA expects the Proposed Alternative to satisfy the following statutory requirements of Section 121(b) of CERCLA:

1. Be protective of human health and the environment;
2. Comply with ARARs;
3. Be cost-effective;
4. Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and
5. Satisfy the preference for treatment as a principle element by chemical stabilization of the metals in the sediment prior to placement in the interim storage cell.